Assessment of The Impact of Houthi Ships Attacks in The Red Sea in Operations Efficiency of Tanzania's Shipping Sector

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Abstract- This study assesses the impact of Houthi ship attacks in the Red Sea on Tanzania's shipping sector. The Red Sea, a critical maritime corridor linking Asia, Africa, and Europe, has faced rising insecurity due to Houthi attacks, which have disrupted global shipping routes and increased operational costs. Tanzania, being heavily dependent on maritime trade through the Port of Dar es Salaam, has been indirectly affected by these disruptions. The study adopted a mixed-methods approach with a sample of 96 respondents drawn from shipping companies, port authorities, logistics firms, and traders. Quantitative data were analyzed using descriptive statistics and presented in tables and graphs, while qualitative insights were obtained through interviews with key stakeholders. The findings revealed that Tanzanian shipping companies are incurring higher operational costs due to increased freight charges, elevated insurance premiums, and additional fuel consumption from rerouted voyages. Trade scheduling has also been negatively affected, with longer transit times causing port congestion and delays in cargo clearance. These disruptions have collectively reduced trade volumes, increased costs of imports and exports, and negatively affected the profitability of logistics operators and port stakeholders. The study concludes that Tanzania's shipping sector is highly vulnerable to external geopolitical shocks emanating from the Red Sea crisis. To address these challenges, the study recommends strengthening regional and international maritime security cooperation, modernizing Tanzanian port infrastructure, diversifying trade corridors, and developing cost-sharing mechanisms between shippers and government institutions. These measures will enhance the resilience of Tanzania's shipping sector and ensure continuity of maritime trade in the face of global disruptions.

INTRODUCTION

One of the busiest and most important routes for the transportation of people and goods worldwide is the maritime route that runs from Bab-al-mandab in the Gulf of Aden to Redsea. It plays a vital role in international trade between Asia and Europe, which is highly significant for the movement of resources and goods. An estimated 12–15% of all foreign trade was handled by the route in 2023.

Instability along important trade routes has been exacerbated by the Israeli-Palestinian conflict, which has escalated in the past year and had a substantial impact on marine traffic, particularly for ships from the Northern regions that now face increased dangers, including direct attacks. International trade vessels in the Red Sea and Indian Ocean are being specifically targeted by the Al-Houthi

movement, which is aggressively working to seize control of northern Yemen. Furthermore, the actions of the Palestinian Hamas group have intensified, posing a greater threat to maritime commercial operations.

Abdalla (Personal contact, September 19, 2024) claims that the Al-Houthi group is stepping up its attacks, particularly against ships that support Western interests. To counter such threats, the United States and the United Kingdom have increased their military posture in the area. Iran's role is also crucial; tensions in the region have increased, especially with Saudi Arabia, as a result of its diplomatic, military, and financial support for the Al-Houthi group. Abdalla further underlined that Iran's support for the Al-Houthis and its strategic aspirations in the Red Sea are significant causes of the persistent maritime insecurity. The actions of the Al-Houthi organization are increasingly seen as a direct threat to global maritime trade as the conflict progresses, particularly to the interests of Western nations and their regional allies. Global marine security faces significant problems as a result of these intensifying operations, and successful countermeasures require concerted international responses.

Increased attacks by Iranian-backed Houthi rebels, who are targeting commercial vessels amid broader regional tensions linked to Israel's operations in Gaza, have turned the Red Sea—especially the Bab-el-Mandeb Strait—into a geopolitical flashpoint. The Bab-el-Mandeb is essential to the continuous flow of products because of its strategic significance as a major route for international trade between Asia and Europe (Partington, 2024).

This study aims to assess the impact of continuous violence on international shipping traffic and comprehend the strategic importance of this maritime corridor. It also looks at how the Houthi war has escalated as a result of the region's inadequate participation in maritime security. By identifying key challenges and providing actionable recommendations, the study will support the development of strategies that enhance resilience and ensure smoother operations despite unpredictable disruptions in vital maritime routes like the Suez Canal.

Statement of the Problem

The Red Sea is a vital global maritime trade corridor, with Tanzania’s ports—particularly Dar es Salaam—playing a crucial role in East Africa’s imports and exports. However, recent escalations in Houthi-led armed attacks on vessels transiting the Red Sea have severely disrupted the safety and reliability of this route. These attacks have resulted in increased insurance costs, forced rerouting of ships, and caused delays that hinder port efficiency (Chatham House, 2020; International Maritime Bureau, 2021).

Since November 2023, the Ansar Allah (Houthi) movement has launched attacks in the Red Sea and Gulf of Aden, disrupting key trade chokepoints like the Suez Canal and Bab al-Mandab Strait. These disruptions have forced vessels to take longer, costlier routes around the Cape of Good Hope, compounding global economic challenges already strained by COVID-19, the Russia-Ukraine conflict, and environmental constraints like the Panama Canal drought (Notteboom et al., 2021).

Between October 2023 and 2025, the Houthis have executed nearly 100 attacks using unmanned vehicles, anti-ship missiles, drones, and ballistic weapons, further destabilizing global shipping routes (Gambrell, 2025). These disruptions underscore a core vulnerability in the maritime transport sector—its inability to adequately manage risk and support weak links in global supply chains during crises, resulting in high freight costs and port congestion (Cullinane & Haralambides, 2024).

With Tanzania’s economy heavily reliant on maritime trade, the growing insecurity in the Red Sea presents both immediate and long-term economic threats. This study aims to address a gap in existing research by assessing the economic impacts of Houthi attacks on Tanzanian maritime trade. It evaluates financial losses, trade disruptions, and the broader security implications, ultimately offering strategies for mitigation, resilience, and recovery.

Research objectives

General objective; To assess the operational impacts of Houthi ship attacks in the Red Sea on Tanzania's shipping sector.

Specific objectives.

i. To examine the effect of Houthi attacks on operational costs incurred by Tanzanian shipping companies.
ii. To evaluate the impact of rerouted maritime traffic on shipping schedules and delivery timelines in Tanzania.
iii. To analyze the effect on trade volumes in Tanzanian ports due to the disruptions in Red Sea shipping routes.

Research Methodology.

The methodological framework used to assess the impact of Houthi ships attacks in the red sea In operations efficiency of Tanzania's shipping sector. It explains what research design and methods were used, why they were appropriate, and how they were applied in this study. A research approach is the strategy used to implement a research design. It determines how data is collected, interpreted, and linked to the study objectives. The aim of this research was not only to quantify cost and delay impacts but also to understand stakeholder perspectives and organizational responses. A combined qualitative and quantitative approach was applied. Quantitative methods focused on measurable operational disruptions, while qualitative methods explored strategic responses and broader implications. The research focus on **Tanzania's shipping sector**, with a particular emphasis on the **Port of Dar es Salaam**, as it serves as the country's main maritime gateway. Other related logistics hubs and shipping companies operating in Tanzania will also be considered.

Thematic analysis was used to analyze the qualitative data, and SPSS was used to process the quantitative data for descriptive statistics. Ethical issues, which guarantee participant anonymity, informed permission, and secure data handling, round up the chapter.

FINDINGS AND DISCUSSIONS

This part presents the findings of the study based on data collected from a sample of 96 respondents. The analysis is structured around the study objectives, with results presented using tables, graphs, and descriptive statistics. The findings highlight the operational, economic, and trade impacts of Houthi ship attacks in the Red Sea on Tanzania's shipping sector, followed by tables summarizing the results, scholarly discussion of each variable, and implications for Tanzanian maritime trade.

Demographic characteristics of the Respondents

Understanding the demographic background of the respondents is essential in interpreting their perceptions and experiences regarding the economic impact of Houthi ship attacks on maritime trade in Tanzania. The study gathered data from port officials, shipping agents, customs officers, freight forwarders, and maritime economists operating within Tanzania's maritime trade corridor, particularly through the Dar es Salaam port. The demographic variables analyzed include, education level, work experience, and occupation.

Education of Respondents

The study determines the education level of respondents and its implication to the study. More than half of respondents (52%) had a Bachelor's degree, indicating that the sample was generally well-educated.

Education Level of Respondents

Education Level	Frequency	Percentage (%)
Diploma	18	19%

Bachelor's Degree	50	52%
Master's Degree	20	21%
PhD	8	8%
Total	**96**	**100%**

Source: Field data, 2025

From the Table above, A significant majority of respondents possess at least a bachelor's degree or higher. This indicates that the responses and insights collected are informed by a solid academic and professional understanding of maritime trade dynamics. 19% of the respondents hold diplomas, representing experienced mid-level professionals who are directly involved in operations such as port logistics, customs clearance, and trade facilitation. This small proportion implies that most participants are likely to be engaged in supervisory or managerial roles rather than basic operational tasks. The high educational background of respondents adds credibility and analytical depth to the study. It suggests that their opinions on the economic implications of Houthi attacks such as rerouting costs, port delays, insurance premiums, and trade disruption are based on informed perspectives. The educational diversity also ensures a balanced view, capturing both policy-level and operational-level experiences.

Working experience of respondents

The study determines the Working experience of respondents and its implication to the study. The study findings revealed that the Working experience level ranged from Less than 1 year to More than 6 years.

Working Experience of Respondents

Working Experience	Frequency	Percentage (%)
Less than 1 year	14	18.18%
1–3 years	26	33.77%
4–6 years	22	28.57%
More than 6 years	15	19.48%
TOTAL	**77**	**100%**

Source: Field data, 2025

From the table above, the largest group (33.77%) consists of respondents with 1–3 years of experience. These individuals likely have recent exposure to current maritime trade systems and may be more aware of how recent disruptions, like the Houthi attacks, are affecting supply chains and operations. 18.18% of respondents are relatively new to the sector. While their insights might be limited in historical comparison, they can provide fresh perspectives on recent challenges and how new employees are trained to cope with emerging risks in the maritime industry. 28.57% of respondents fall in this category, indicating a strong representation of professionals who have worked through various market cycles and may have experience managing trade disruptions and rerouting scenarios. 19.48% of respondents bring long-term institutional knowledge, which is valuable for understanding the comparative economic impact of previous regional threats versus the current Red Sea crisis. The data reflects a balanced blend of experience levels among the respondents. The mix allows the study to benefit from both current, hands-on perspectives and deeper institutional insights. This strengthens the reliability of the findings, as the economic impact is examined through both operational and strategic lenses.

OBJECTIVE 01: Operational Impacts of Houthi Ship Attacks

Respondents were asked about the operational disruptions experienced by Tanzanian shipping companies due to Houthi attacks.

Operational Disruptions Reported

Operational Impact	Frequency	Percentage (%)
Vessel rerouting	65	68%
Increased shipping delays	20	21%
Port congestion	11	11%
Total	**96**	**100%**

Source: Field data, 2025

Operational Disruptions in Tanzania's Shipping Sector

(vessel rerouting 68%, followed by delays 21%, and congestion 11%). The results show that **68% of respondents identified vessel rerouting** as the most common operational impact, while **21% reported delays** and **11% pointed to port congestion**. This indicates that Tanzanian shipping companies are primarily affected through longer and more expensive shipping routes. This high percentage reflects the widespread and serious operational disruptions Tanzanian shipping companies are experiencing due to Increased security risks in the Bab el-Mandeb Strait, Rerouting vessels around the Cape of Good Hope, Delays in cargo delivery and increased shipping durations and Heightened insurance and fuel costs. This figure strongly supports the argument that regional conflicts, even when geographically distant, can have profound ripple effects on East African economies that rely heavily on global maritime trade. Respondents indicated that port charges had increased, mostly due to operational inefficiencies, congestion, and delays at destination ports. Tanzanian ports like Dar es Salaam are experiencing more variable arrival times, making port logistics harder to manage. Shipping lines arriving off-schedule may incur demurrage, storage fees, or late handling surcharges. Additionally, port operators may increase tariffs to cope with delays and demand for flexible berthing windows. As noted by UNCTAD (2024), port-related charges in African ports have risen by 8–15% since the beginning of the Red Sea crisis, primarily due to inefficiencies in cargo clearance and unpredictable vessel arrivals.

"Because ships avoid the Suez route, they arrive at Tanzanian ports irregularly, often requiring priority docking and that comes with premium port handling charges."

The data reveals that the increase in operational costs due to Houthi attacks on Red Sea shipping routes has been "very significant." This finding highlights the severe economic pressure that Tanzanian shipping companies and traders are experiencing as a result of the conflict in the Red Sea region. Respondents likely considered multiple factors contributing to the high-cost impact Rerouting of Vessels, Ships are avoiding the Red Sea and the Suez Canal, choosing longer, more expensive routes around the Cape of Good Hope. This adds 7–14 days to voyages, leading to increased fuel consumption and time delays. UNCTAD (2024) reported that shipping costs for East African countries rose by over 35% due to Red Sea disruptions, echoing the high-cost significance seen in Tanzanian responses.

"The increase in operational costs is not marginal — it's drastic. Insurance, fuel, and security costs have skyrocketed. This is affecting our bottom line and forcing us to reconsider regional routes altogether."

The data shows that respondents reported that vessel rerouting was undertaken in response to the Houthi attacks in the Red Sea. This high percentage reflects the widespread operational disruption experienced by the maritime industry in Tanzania and beyond.

The Houthi rebel attacks on commercial ships including drone strikes, missiles, and hijackings have turned the Red Sea into a war-risk zone. Shipping companies and operators are forced to avoid the area for crew safety and cargo protection. Clarksons Research (2024): Noted that rerouting has pushed global shipping costs up by over 30% and increased global freight time averages.

"We've been forced to reroute most of our vessels around the Cape of Good Hope instead of going through the Suez Canal. It's a longer, more expensive journey, but necessary for crew safety."

OBJECTIVE 02: Impact of Rerouted Maritime Traffic on Shipping Schedules & Delivery Timelines

The study found that rerouting vessels away from the Red Sea and Suez Canal has significantly affected shipping schedules and delivery timelines for Tanzania. Out of the 96 respondents, 82% indicated that rerouted traffic caused **serious shipping delays**, while 68% noted that schedules became **less predictable** due to inconsistent arrival times. On average, delivery timelines were extended by **4–10 days**, depending on the route and port congestion levels. These delays were further compounded by increased congestion at Tanzanian ports, especially Dar es Salaam, as vessels arrived in irregular clusters instead of evenly spaced schedules.

Shipping companies reported that rerouting through the Cape of Good Hope not only prolonged voyages but also disrupted downstream logistics such as customs clearance, storage, and distribution. Exporters complained of **missed deadlines**, while importers highlighted **stock shortages** and **increased holding costs** due to late arrivals.

The rerouting of ships around the Cape of Good Hope due to Houthi attacks in the Red Sea has direct and indirect consequences on Tanzania's shipping schedules. Before the crisis, most Tanzanian-bound vessels used the Red Sea–Suez Canal route, which was shorter and more predictable, Rerouting added 4–10 extra days to journeys, depending on vessel speed and destination. 79% of respondents reported longer shipping times, creating ripple effects across the supply chain.

With rerouting, shipping lines struggled to maintain consistent schedules. 68% of respondents noted irregular arrival times at Dar es Salaam Port. Instead of even vessel distribution, ships often arrived in clusters, overwhelming port resources.

Impact of Rerouted Maritime Traffic on Shipping Schedules & Delivery Timelines

Impact Area	Indicators	Frequency (%)	Interpretation
Extended Shipping Duration	Voyages extended by 4–10 days	79%	Majority of vessels face longer sailing times due to rerouting.
Unpredictable Arrival Times	Irregular vessel arrivals at Dar es Salaam	68%	Creates scheduling inefficiencies and port congestion.
Delayed Deliveries	Missed contractual deadlines with clients	72%	Importers/exporters experience disruption in supply chain.

Increased Port Congestion	Clustered vessel arrivals & berthing delays	65%	Congestion adds further delays at Tanzanian ports.
Higher Holding/Storage Costs	Extra warehousing expenses due to late cargo	61%	Importers incur additional financial burdens.
Customer Dissatisfaction	Complaints about unreliable deliveries	74%	Reliability of Tanzania's shipping sector is negatively perceived.

Source: Field Data (2025)

Interpretation in Relation to Tanzania

These findings indicate that rerouting has **serious consequences** for Tanzania's maritime trade efficiency. Delays, congestion, and increased costs disrupt the entire supply chain, from ports to final consumers. In the long run, this undermines Tanzania's competitiveness as a trade hub in East Africa.

OBJECTIVE 03: Trade and Business Impacts (changes in import and export volumes through Tanzanian ports due to the disruptions in Red Sea shipping routes)

Respondents were asked how the attacks influenced trade volume and profitability.

Decline in Import Volumes Import volumes through Dar es Salaam and Tanga ports dropped significantly after the disruptions began in late 2023. 67% of importers reported reduced shipment volumes because suppliers delayed or rerouted goods via longer, costlier paths. Essential commodities (fuel, machinery, spare parts, consumer goods) experienced delayed replenishment. Import volumes fell by 15–20% in the first half of 2024 compared to the same period in 2023.

Export Volumes Affected, Exporters, particularly of agricultural products (coffee, cashew nuts, horticulture, and fish), faced difficulties in meeting contractual deadlines due to delays. 58% of exporters reported lost orders, especially in perishables, where time-sensitive delivery is crucial. Export volumes declined by 12%, with perishable exports hit the hardest (up to 18%). Shifts in Trade Routes. Some importers/exporters attempted to diversify routes, relying more on southern African ports (Durban, Mombasa) or airfreight. However, this increased costs and reduced the competitiveness of Tanzanian ports.

Port Performance Indicators, Cargo throughput at Dar es Salaam Port declined, with port authorities reporting an 8% drop in overall cargo handled between Dec 2023–May 2024 (Port Authority Annual Report, 2024). Container handling declined as shipping lines reduced port calls or rescheduled voyages.

Economic Ripple Effects, Reduced imports created shortages and inflationary pressures in Tanzania's domestic markets. Reduced exports translated into loss of foreign exchange earnings, which strained Tanzania's balance of trade.

Changes in Import and Export Volumes at Tanzanian Ports

Category	Before Disruption (2023)	After Disruption (2024)	% Change	Key Impacts
Imports (General)	100% baseline	80–85%	↓ 15–20%	Delayed replenishment of fuel, machinery, consumer goods
Exports (Total)	100% baseline	88%	↓ 12%	Missed deadlines, reduced competitiveness
Perishable Exports	100% baseline	82%	↓ 18%	Lost orders, spoilage during delays
Port Cargo Throughput (Dar es Salaam)	100% baseline	92%	↓ 8%	Fewer vessel calls, delayed cargo clearance

Source: Field Data (2025)

The findings show that disruptions in the Red Sea significantly reduced import and export volumes through Tanzanian ports. Imports fell due to rerouting, longer shipping times, and increased freight costs, while exports—especially perishable agricultural products—suffered from missed deadlines and spoilage. The overall decline in port throughput highlights Tanzania's vulnerability to global maritime disruptions, which has cascading effects on trade, economic growth, and regional competitiveness.

CONCLUSION AND RECOMMENDATIONS

This section aims at providing a comprehensive summary of the study findings, drawing key conclusions based on the research objectives. It also outlines the study's contribution to new knowledge and offers practical recommendations to mitigate the economic impact of Houthi ship attacks in the Red Sea on Tanzanian maritime trade.

5.2 Conclusion

The study set out to examine the effect of Houthi attacks on operational costs incurred by Tanzanian shipping companies, and the findings revealed that these attacks have significantly escalated costs across multiple dimensions. Shipping firms reported substantial increases in fuel expenses due to rerouting around the Cape of Good Hope, higher insurance premiums resulting from the classification of the Red Sea as a war-risk zone, and additional port handling and security-related costs. These rising operational expenses have directly reduced profitability and placed a financial burden on both shipping companies and their clients, indicating a direct link between geopolitical instability in the Red Sea and Tanzania's maritime economic sustainability.

The second objective aimed to evaluate the impact of rerouted maritime traffic on shipping schedules and delivery timelines in Tanzania, and the results showed a clear disruption of timeliness and scheduling. Vessels avoiding the Red Sea faced extended voyage times of 7–14 additional days, which caused consistent shipping delays, port congestion, and logistical challenges at Dar es Salaam port. Tanzanian importers and exporters experienced reduced reliability in supply chains, with a majority of stakeholders confirming that shipping delays had become frequent and often severe. This demonstrates how rerouted maritime traffic not only increases costs but also undermines the efficiency and competitiveness of Tanzania's shipping sector.

The third objective focused on analyzing the effect on trade volumes in Tanzanian ports due to disruptions in Red Sea shipping routes, and findings revealed noticeable fluctuations in both imports and exports. Cargo volumes, particularly containerized imports

of essential goods such as fuel, machinery, and consumer products, declined due to longer delivery timelines and higher freight charges. Export volumes, including agricultural products and minerals, were also negatively affected, with Tanzanian goods becoming less competitive in global markets as transport costs surged. These outcomes indicate that prolonged insecurity in the Red Sea has the potential to reduce Tanzania's trade throughput, weaken port revenues, and slow economic growth.

Overall, the research concludes that Houthi attacks in the Red Sea have had multifaceted negative impacts on Tanzania's shipping sector raising operational costs, undermining delivery timelines, and reducing trade volumes. The findings emphasize the vulnerability of Tanzania's maritime trade to external geopolitical shocks and underscore the urgent need for strategic interventions, including regional cooperation, diversification of trade routes, and investment in resilient maritime infrastructure.

5.4 Recommendations

Based on the findings, the study recommends the following:

1. **For Shipping Companies:**
    - Invest in dynamic routing software and risk forecasting tools to better manage future disruptions.
    - Enhance internal security protocols and crew training to improve preparedness for high-risk transits.
2. **For the Government of Tanzania:**
    - Offer temporary tax relief or operational subsidies to shipping companies severely affected by rerouting and cost escalation.
    - Strengthen diplomatic advocacy through the African Union and regional bodies for stronger naval presence in the Red Sea.
3. **For International Organizations (UN, IMO, etc.):**
    - Increase real-time risk communication and offer more targeted support (financial or operational) to affected ports and companies.
    - Facilitate regional maritime security collaborations involving East African states to buffer indirect threats.
4. **For Future Researchers:**
    - Further studies could explore long-term shifts in trade routes and changes in regional port competitiveness as a result of sustained Red Sea instability.

By implementing these recommendations, stakeholders can enhance the resilience of Tanzanian maritime trade against future geopolitical disruptions.

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